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California Fresh Tomatoes--Marketing Channels and Gross Margins from Farm to Consumer--Summer and Fall, 1948

by

Walter D. Fisher

Results of a Cooperative Study Conducted by the
United States Department of Agriculture, Bureau of
Agricultural Economics, the California Farm Bureau Federation,
and the California Agricultural Experiment Station

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Acknowledgments

This report is one phase of a larger study on marketing channels and margins for fresh fruits and vegetables produced and sold within California. It was undertaken jointly by the United States Department of Agriculture, Bureau of Agricultural Economics, the California Farm Bureau Federation, and the California Agricultural Experiment Station. General supervision and assistance in formulating plans were given by D. B. De Loach and Wendell H. Calhoun of the Bureau of Agricultural Economics, Alex Johnson of the California Farm Bureau Federation, and H. R. Wellman of the California Agricultural Experiment Station.

Contacts with the trade were established and maintained and statistical data collected and edited by H. Fisk Phelps, Willard F. Williams, Robert V. Enochian, and George A. Jackson, Jr., all jointly employed by the cooperating agencies, and also by Eldon Dye, Ralph Rush, and Irwin Rust of the California Farm Bureau Federation. These persons also supplied supplementary background information of great value.

The great bulk of final editing, sorting, statistical tabulation and computation was performed by Dorothy Eaton of the California Agricultural Experiment Station.

The cooperation of retail store managers, produce dealers, packers and growers throughout the state in supplying information on prices and sources of supply is gratefully acknowledged.

Table of Contents

	Page
Objectives	1
Coverage	1
Procedure	2
Channels of Distribution	4
Cost of Marketing--Main Components	10
Retail Margins	14
Wholesale and Packing Charges	17
Summary of Findings	19
Appendix A: Supplementary Tables on Retail Margins	22
Appendix B: Methods of Making the Estimates	27
Appendix C: Definitions of Terms	40
Appendix D: Location of Retail Stores	43

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California Fresh Tomatoes--Marketing Channels and Gross Margins from Farm to Consumer

by

Walter D. Fisher[1]

Objectives.--The objectives of the over-all study of which this report is a part are: (1) to determine the methods and channels of distribution of fresh fruits and vegetables within the state of California and the price margins in the various points of distribution from producer to consumer, and (2) to indicate possible changes and improvements that might be made in the distributive system. Many persons have the belief that there is too large a difference between prices charged consumers for food and prices paid growers. Such opinions are often based on little or no information. Only thorough and impartial study of increasing amounts of information can lead to sound conclusions and to real improvement of marketing practices. The cooperating agencies recognize that one of the primary needs in this field is more information and the acquaintance of all parties with the facts.

The present report deals with only a part of the first objective stated above. The immediate study was designed to determine the sources of supply of California-grown tomatoes sold in independent and local chain retail stores within the state and to obtain the estimated prices paid, prices received, and gross margins taken by retailers and by the various dealers handling these tomatoes from the grower to the retail outlet. It is also desired to compare the gross margins (or marketing costs) found for different geographic areas, types of dealer, and types of services performed.

Coverage.--This report covers fresh tomatoes sold in bulk of good merchantable quality. The report is based on data collected during the period from

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1/ Formerly Assistant Professor of Agricultural Economics, Assistant Economist in the Experiment Station and on the Giannini Foundation. Resigned September 5, 1950.

[illegible] Dried Fruits--Marketing Charges and Costs

by John [illegible] and [illegible]

**

Scope of Problem[1]

Importance.--The importance of the marketing phase of dried fruit cannot be a matter doubt. (1) in relation to the growers and consumers of dried fruit and (2) in relation to the marketing agencies. The importance of marketing to the growers is indicated by the fact that the marketing agencies must be financed, and (1) by the growers, through and deductions in their sale price, or indirectly, by the distributing agencies. Many growers look the matter this lower on the ladder a difference two cents during several successive years and they will [illegible]. Such changes are often based on little or no information. Not infrequently and important step in intelligent marketing is information on hand to assist producers and to keep informed of marketing problems. The marketing agencies recognize this need of the growers which is this fact is some information and the organization of the growers.

The present report will only a part of the dried fruit marketing picture. The industry will not the good to discussion on marketing of dried fruit [illegible] with the [illegible] and [illegible] the [illegible], [illegible] and [illegible] by the [illegible] [illegible] [illegible]

August to November 1948, inclusive. Only tomatoes that were both produced and sold within the state of California were considered.

Retail outlets included are independent stores and local chain stores; no attempt was made to include national chains, restaurants, or farmers' roadside stands. Stores situated in all areas of California were included, with the exception of the portion of the state lying to the east of the Sierra Nevada.

Procedure.--The basic procedure for establishing the facts regarding prices and sources of supply was to follow back given lots of tomatoes from the retail store to the grower, thereby determining the channel of trade through which the particular lot of tomatoes moved from the farm to the final consumer. Each retail store visited was asked to supply information on both the selling price and the purchase price of tomatoes being displayed at the time of the visit by the field representative. The store also supplied information on the source of supply of its tomatoes. The dealer mentioned by the store was then interviewed and similar information requested. The source of supply of this dealer was then ascertained, and the same procedure followed until the original grower source was reached or until sources had been traced back as far as possible. In the majority of cases the original source in the producing area was ascertained.

It is to be noted that this procedure supplies both selling and purchase prices for the individual lot being considered. It also provides a double check on prices reported. In cases where it was not possible to retain the identity of the individual lot, prices were obtained on tomatoes handled on the same day as that on which the lot in question was handled and of a similar quality. In many cases the original packer or grower could be identified by a brand name. It was thus possible to compute gross margins from prices ascertained on an individual transaction basis and to avoid the necessity of using an average market wholesale price in the computation of margins.

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The retail proprietor or store manager was also asked the questions: "What amount did you sell last week?" and "How many pounds were thrown away last week due to waste and spoilage?" The answers to these questions were used to compute spoilage loss and the weight for the store in computing weighted averages. Retailers and dealers were also asked to furnish information on the type of sale and on transportation cost so that the price information could be adjusted, if necessary, to a uniform basis and transportation costs presented separately.

A total of 654 usable field schedules was collected from separate visits to retail stores--454 from northern and central California (that portion of the state lying north of the Tehachapi Mountains) and 200 from southern California. A sample of 66 stores was visited eight times during the period--once every half month during the four months, August through November. These stores were located in the more densely populated and accessible areas. In the more remote areas of the state a sample of 117 stores was visited twice, once in late September and once in early November. The location of the stores in each of these groups is shown in Appendix D.

In southern California it was found that tomatoes were sold both in 32-pound lugs and in "flat" lugs weighing approximately 20 pounds. Thirty-two-pound lugs were found on 122 store visits and flat lugs were found on 78 store visits. In presenting the tabulations on prices and margins in this report, only the 32-pound lugs are considered, but in presenting information on channels of distribution, both sizes are included.

The 654 usable schedules were classified, or stratified, into subgroups according to geographic location, city size, store size, and store type. The figures appearing in the following sections of this report are weighted averages based on certain of these strata. Details of the computations are presented for each chart or table in Appendix B. In general, the data within a stratum were

combined using "amounts sold last week" as weights; different strata were combined using weights based on estimated sales of all fresh fruits and vegetables for the strata.

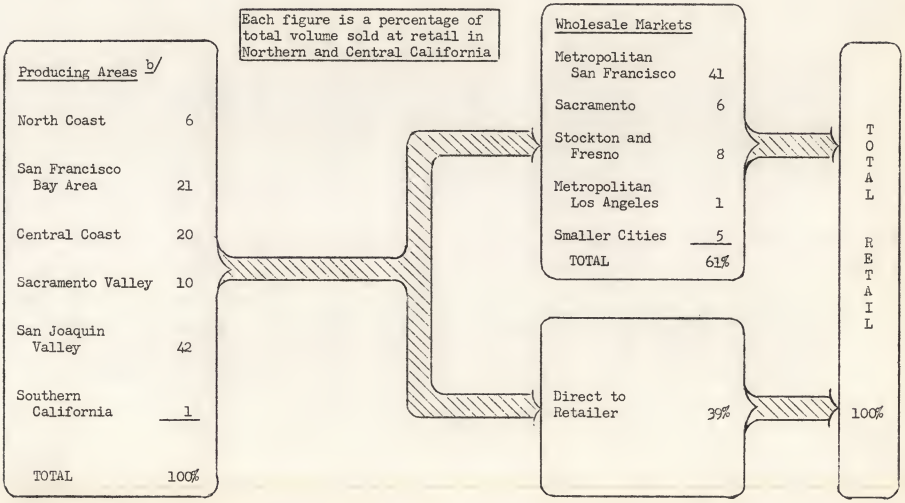
The data collected from these store visits and from the follow-up visits are regarded as a sample from a population consisting of all California-grown tomatoes sold in independent and local chain retail stores located west of the Sierra Nevada during the period, August through November, 1948. The weighted averages are considered as estimates for this larger population. Many readers of this report will apply the conclusions to other years besides 1948 and will, therefore, regard the data as being a sample from an even larger population--providing conditions are "similar" to those in 1948. Very few readers will be interested only in the particular stores visited and the particular dates on which the visits were made.

So interpreted and used, these data are subject to limitations. The sample is small and the figures presented may be assumed to have sampling errors. A time bias is present in that during September and November more of the smaller stores and smaller towns were visited than during the rest of the period. Wide variations in conditions were found to exist among different areas of the state and different kinds of business, and unknown biases may be present in the figures. It is believed, however, that they are useful in presenting an approximate picture of the distribution system exclusive of the national chains.

Channels of Distribution.—The relative importance of the different producing areas of the state and the principal city wholesale markets are shown in figures 1 and 2. Figure 1 refers to northern and central California (north of the Tehachapi Mountains), and figure 2 refers to southern California. The numbers appearing on the charts are percentages of volume sold at retail. Figure 1 shows that in northern and central California 39 per cent of the volume went

Figure 1

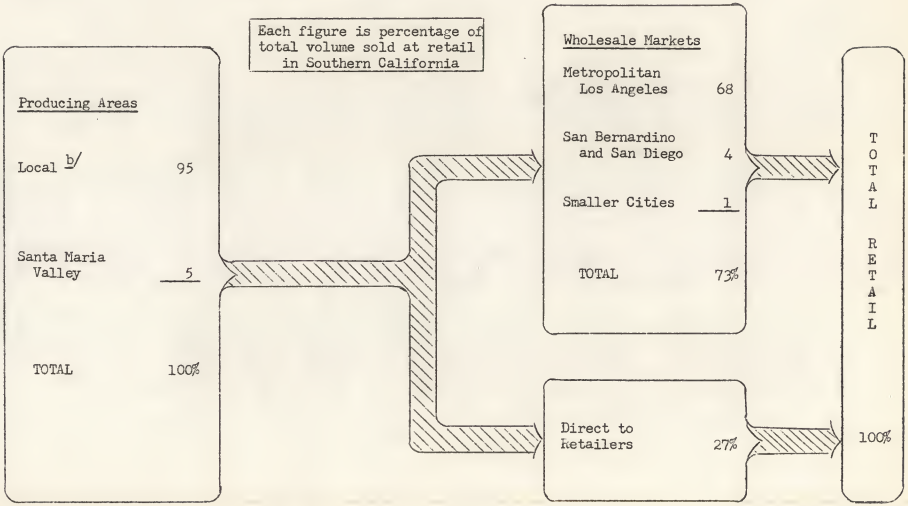
GEOGRAPHIC MOVEMENT OF FRESH TOMATOES SOLD AT RETAIL IN NORTHERN AND CENTRAL CALIFORNIA a/
Summer and Fall, 1948



a/ Portion of California north of Tehachapi Mountains
b/ For definitions of areas, see page 37

Figure 2

GEOGRAPHIC MOVEMENT OF FRESH TOMATOES SOLD AT RETAIL IN SOUTHERN CALIFORNIA [a]
Summer and Fall, 1948



a/ Portion of California south of Tehachapi Mountains
b/ Coastal areas of Southern California including Ventura County

directly from producing areas to local retailers without going through any city market, and that the balance of 61 per cent moved through city wholesale markets. Figure 2 shows that in southern California 27 per cent of the volume moved directly to retail outlets, the remaining 73 per cent going through wholesale markets. These figures are subject to errors discussed in Appendix B, page 31.

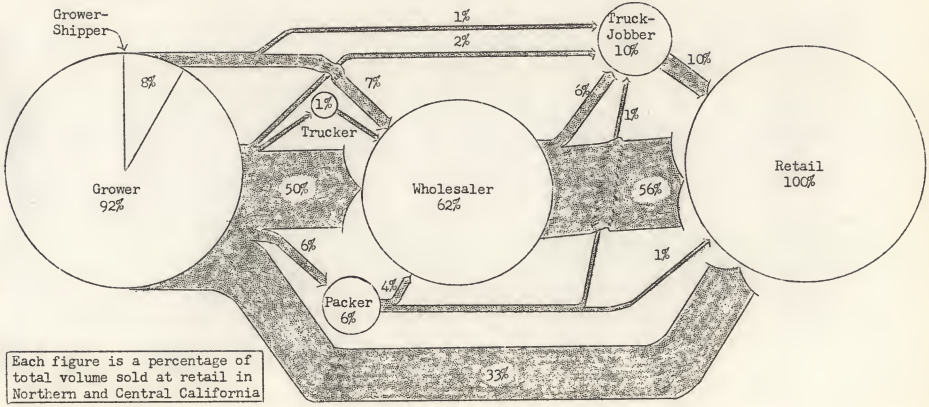
Precise definitions of the producing areas are presented in Appendix C.

It is estimated that total California retail sales of fresh fruits and vegetables (excluding territory east of the Sierra) is distributed almost equally between northern and southern California (51 per cent for southern, 49 per cent for northern). When these weights are applied to the data shown in figures 1 and 2, the result is obtained that 32 per cent of all California tomatoes move directly to retail, and 68 per cent move through wholesale markets, of which 35 go through metropolitan Los Angeles, 20 to metropolitan San Francisco, and 13 through all other city markets combined. The most important producing areas, expressed as per cent of total California volume, are: southern California, 49; San Joaquin Valley, 21; Central Coast, 12; San Francisco Bay area, 10; Sacramento Valley, 5; North Coast, 3.

Figures 3 and 4 are flow charts based on types of dealers. For the purpose of this study a wholesaler is defined as a dealer who has an established place of business where customers come and buy and whose principal business is to receive produce, store it, and resell or handle on a commission basis. If a dealer falls in this category, he is classified as a wholesaler in this study regardless of whether he sells to retailers or to other dealers and regardless of the amount of business he handles. He may perform delivery service (service wholesaler), but he must have an established place of business where customers come and buy. Thus, dealers who are often classified as "jobbers" will be included in this study under the classification of wholesalers. But if a dealer has no

Figure 3

DEALER TYPES[a] HANDLING FRESH TOMATOES SOLD AT RETAIL IN NORTHERN AND CENTRAL CALIFORNIA[b]
Summer and Fall, 1948

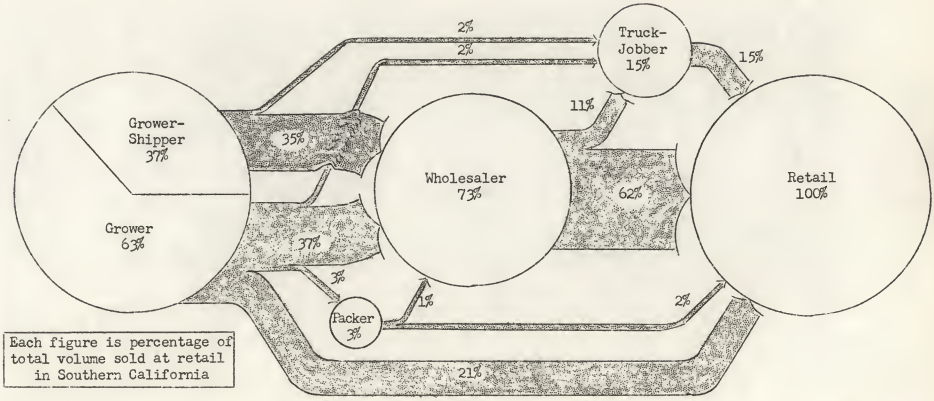


a/ For definitions of dealer types, see page 37

b/ Portion of California north of Tehachapi Mountains

Figure 4

DEALER TYPES[a] HANDLING FRESH TOMATOES SOLD AT RETAIL IN SOUTHERN CALIFORNIA[b]
Summer and Fall, 1948



a/ For definitions of dealer types, see page 37
b/ Portion of California south of Tehachapi Mountains

established place of business and operates a truck route of delivery to retailers, he is classified as a truck-jobber. Precise definitions of terms used are given in Appendix C.

It is seen from figure 3 that 10 per cent of the northern California volume moves through truck-jobbers, who usually follow a regular truck route of delivery to retail stores. This category of dealers includes those who restrict their operations to stores located within large cities and also those who operate routes of fifty miles or more away from their sources of supply. In southern California truck-jobbers handle 15 per cent of the volume.

By comparing the grower-shipper percentages as shown in figures 3 and 4, it is seen that grower-shippers are relatively more important as a source of supply for local markets in southern California (37 per cent of volume) than in northern California where they supplied only 8 per cent.

When northern and southern California are combined (see page 6 above, it is found that growers handled 78 per cent; grower-shippers, 22 per cent; packers, 5 per cent; wholesalers, 67 per cent; truck-jobbers, 13 per cent. (The sum of these percentages exceeds 100 per cent because most of the tomatoes pass through the hands of more than one dealer.)

The magnitude of the sampling errors of the percentages shown in figures 1 through 4 is discussed in Appendix B, page 31.

Cost of Marketing--Main Components.--A general idea of the size of the main components of marketing cost can be gained by considering the distribution of the amounts of money spent by consumers for tomatoes. Table 1 and figure 5 show such a breakdown. During the period of time in question, the average retail price to consumers was found to be 11.2 cents per pound. Approximately 12 per cent of the tomatoes received by retailers were lost through waste and spoilage, including both the amount thrown away while unpacking and amounts spoiled or damaged later

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[illegible]

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TABLE 1

Components of Cost to California Consumers for Fresh Merchantable Tomatoes--Average During Summer and Fall of 1948

Item	Number of merchantable pounds[a]	Cost for stated number of pounds
		dollars
Farm price (at farm gate)[b]	32	1.00
Packing (including container)	32	.46
Transportation	32	.13
Wholesale margin	32	.22
Retail margin	28	1.33
	32[c]	1.76[c]
Cost to consumer	28	3.14
	32[c]	3.57[c]

a/ Typical quantity per lug at completion of function, except when otherwise stated. For transportation and wholesale margin, 32 pounds are assumed; to the extent that spoilage may have occurred during these stages, the figure is overstated.

b/ Computed equivalent for 32 pounds unpacked, unless packing was performed in the field. Includes harvesting cost.

c/ Computed equivalent presented for purposes of comparison. Retail margin here is gross margin as defined in table 1a below, and includes a markup to cover spoilage losses.

TABLE 1a

Retail Margin Per Pound--Computed Two Ways

Method of computation	Amount in cents
1. Gross margin[a]	
A. Retail price per pound sold	11.2
B. Cost per pound to retailer	5.7
Gross margin equals A - B	5.5
2. Gross realized margin	
C. Retailer's return for each pound handled	9.9
B. Cost per pound to retailer	5.7
Gross realized margin equals C - B	4.2

a/ Sometimes called "price spread" or "nominal margin." Includes markup to cover spoilage losses.

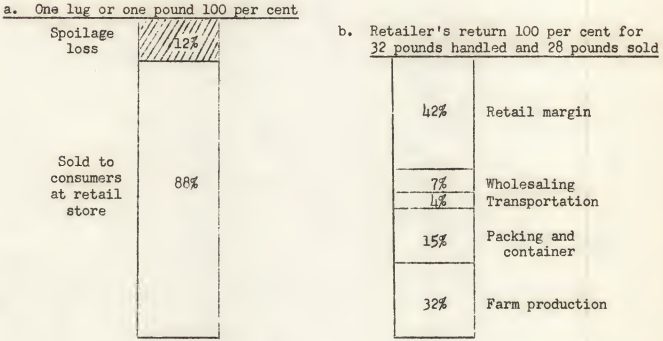
[illegible]

[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

FIGURE 5

Components as Percentages



on in the store (figure 5a). One way of regarding the matter is to consider that out of a 32-pound lug bought by a "typical" retailer, 4 pounds (12 per cent of 32) are lost through spoilage, the remaining 28 pounds being sold to consumers and returning $3.14 to the retailer. So that although consumers paid $3.57 for 32 pounds at retail, the retailer only received $3.14 for each lug handled by him (table 1).

The percentages appearing in figure 5b are the figures in the right-hand column of table 1 expressed as a per cent of $3.14. They represent the distribution of consumers' expenditure among the various categories listed and can be regarded as "per cent of consumer's dollar" as this term has been used by the U. S. Bureau of Agricultural Economics. It can be seen that farm production accounts for only 32 per cent of the consumer's dollar while marketing charges account for the remaining 68 per cent. The retail margin alone accounts for 42 per cent. It should be noted that the retail margin is here defined as the difference between the retailer's receipts from 28 pounds of tomatoes sold and his cost for 32 pounds of tomatoes bought.1/

"Wholesale margin" includes all charges, fees, commissions, and net profits by dealers between the grower or packer and the retailer except transportation costs. Transportation is considered as a separate item regardless of who performed the transportation. "Packing" includes the cost of the container, hauling to packing shed, cost of packing, whether performed by packers or by growers,2/ and net profits of packers. "Farm price" (including harvesting cost) is the gross return to the grower for the tomatoes after all marketing costs have been taken into account.

1/ Another way of considering the matter is to ask: What are the costs of marketing and delivering 32 pounds of tomatoes (or one pound) into the hands of the consumer? See Appendix B, pages 32-33.

2/ Grower's packing costs are included in this item unless the packing is performed in the field in which case it is impossible to separate packing from harvesting.

[illegible]

[illegible]

[illegible]

Retail Margins.--The gross difference between the retail price per pound and the price per pound paid by the retailer was 5.5 cents (table 1a), but a part of this amount covered the costs of additional poundage lost through waste and spoilage (not necessarily due to the retailer). If the realized return for each pound handled is considered, this is only 9.9 cents, and the difference between this figure and the price paid is 4.2 cents, which may be called "retailer's realized margin" (table 1a). It may also be considered to be the gross margin adjusted for spoilage losses. In analyzing retail margins, both types of computation were made.

A large variation in retail prices and retail margins was observed in this study. If the gross difference between retail price and wholesale price is considered (the 5.5 cents of table 1a), it was found that the mean deviation about that figure is 2.0 cents. This large variation in retail margins can be partly explained by differences in location of retail store, size of store, and type of store. In table 2 are presented averages for six groups of stores differing in these attributes. The groups were selected so that the average gross margins were found to be significantly different among the groups. It can be seen that the group averages for gross margin range from 3.3 cents per pound in the case of the lowest group to 8.9 cents per pound for the highest group. It is also seen from the second column of table 2 that there is still a considerable variation within these groups, although these variations are not large enough to warrant further subclassification.

The realized gross margins (adjusting for spoilage losses) range from 2.8 to 7.1 cents--almost as great a variation as for the unadjusted margin. The realized gross margin accounts for a percentage of the final retail price varying from 26 to over 45 per cent. Although spoilage is an appreciable factor in the retailing operation, these figures suggest that differences in spoilage loss between these groups do not account completely for the observed differences in gross margin.

Subject Matter.—The above difficulties between the details which prove the [illegible] are the chief [illegible] [illegible] [illegible]

TABLE 2

Retail Margins, Retail Sale Price and Spoilage Loss on California Fresh Tomatoes in Selected Groups of California Stores--Summer and Fall, 1948

Groups having significantly different average gross margins--ranked from lowest to highest	Number of store visits	Gross margin[a] Average margin	Gross margin[a] Mean deviation from average	Realized gross[b] margin	Sale price	Realized margin as per cent of sale price	Percentage spoilage loss
		cents per pound				per cent	
Large[c] grocery and combination stores in Sacramento, Stockton, and Fresno	31	3.3	±1.3	2.8	9.8	28.6	5.1
Small[c] stores in the Sacramento Valley outside the city of Sacramento	31	4.0	±0.8	2.9	11.2	25.9	9.8
Stores in cities under 50,000 (except small stores in Sacramento Valley)	267	4.8	±1.9	3.7	11.1	33.3	9.9
Large[c] fruit and vegetable stores and small[c] stores in Sacramento, Stockton, and Fresno	55	5.5	±1.5	3.3	11.9	27.7	18.5
Cash-carry stores in metropolitan areas of San Francisco,[d] Los Angeles,[e] and San Diego	143	6.3	±2.6	4.9	12.1	40.5	11.6
Stores giving credit or delivery in metropolitan areas of San Francisco,[d] Los Angeles,[e] and San Diego	48	8.9	±2.0	7.1	15.6	45.5	11.5

a/ Difference between sale price and purchase price.

b/ Difference between sale price and purchase price adjusted for spoilage losses.

c/ A large store is defined as one having over $25,000 sales of fresh fruits and vegetables in the year 1948. A small store is defined as one having less than this amount.

d/ Including also East Bay cities and San Jose.

e/ Including also San Bernardino.

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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The gross margin taken seemed to be higher in the large metropolitan centers of San Francisco, Los Angeles, and San Diego than in other portions of the state. Within these metropolitan centers the difference between cash-carry stores and stores offering credit or delivery is significant. There did not, however, seem to be significant differences within the metropolitan centers depending on store size.

Outside of the metropolitan areas no significant differences between cash-carry stores and stores offering credit and delivery were observable. However, in this group retail gross margins varied significantly as between different sized stores and different location of stores.

No significant differences between independent stores and local chain stores were observed that could not be accounted for by the other means of classification tested.

The six groups selected in table 2 represent averages of smaller groups for which comparable data are presented in tables 5, 6, and 7 of Appendix A.

From table 2 it does not appear that there is any greater degree of uniformity in the percentage markup or in the ratio of retail margin to retail price than in the absolute gross margin.

There was found to be some variation in retail prices and margins over the period of time covered by the observations. For the last two groups listed in table 2, this variation is insignificant compared with the variation among individual stores within the group. For the first four groups combined there is significant variation over time, and the ranking of these groups may be due to the timing of the collection of data, that is, to the fact that the extra stores in the extensive sample were included at certain times.

In conclusion, it may be stated that there seem to be large and unexplained variations in retail margins. There may be good reasons for this variation that

have not been brought to light in this study. This is a fertile field for further investigation.

Wholesaling and Packing Charges.--The gross margins taken by wholesalers and truck-jobbers in selected locations are presented in table 3. The average margin for wholesalers was found to be 25.4 cents and for truck-jobbers, 33.1 cents. The higher cost for truck-jobbers is reasonable inasmuch as truck-jobbers carry produce in smaller lots. There also seems to be a tendency for wholesaler's margins in the smaller cities to be slightly higher than in the large metropolitan centers.

These margins include all charges, commissions, and fees except transportation charges. When transportation is performed by the dealer himself, the estimated cost of such transportation is deducted. When an independent broker is used in a transaction, the brokerage fee is included in the wholesale margin as are all other selling commissions. The net profit or management income of the dealer is also included.

Assembling, packing and container charges, whether incurred by independent packers or by growers or grower-shippers, are presented in table 4. In the case of independent packers, the figures cited also include net profits. In the case of growers or grower-shippers, such profits are not included but are allocated entirely to farm production cost. This accounts for the packers' margins in table 4 being larger. Insofar as growers have packing costs, these are the result of their using temporary packing facilities.

The figures in table 4 do not include harvesting costs nor any packing done in the field. Where such operations are in fact performed, the estimated cost is deducted. Harvesting costs in many cases are performed by the party doing the packing. From the data collected, these harvesting costs were found to be as follows: packers, 46.6 cents; grower-shippers, 28.8 cents; and growers, 39.9 cents.

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TABLE 3

Average Gross Margins[a] of Wholesalers and Truck-Jobbers on California Fresh Tomatoes--Summer and Fall, 1948

Dealer type and location	Margin
	cents per lug[b]
Wholesaler[c]	
Metropolitan Los Angeles	24.0
Metropolitan San Francisco and San Jose	19.7
Sacramento, Stockton and Fresno	36.7
San Diego and San Bernardino	40.9
Smaller cities	33.9
California average	25.4
Truck-jobber[c]	
Southern California[d]	26.1
Northern California[d]	43.9
California average	33.1

a/ Includes all charges, commissions, and brokerage fees, except transportation charges. When transportation is performed by the dealer himself, estimated cost is deducted.

b/ 32-pound lugs.

c/ See page 40 for definitions.

d/ Tehachapi Mountains taken as dividing line between northern and southern California.

[illegible]

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[illegible]	
[illegible]	[illegible]
[illegible]	[illegible]
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The cost figures in table 4 also include the wholesale container used. The container may be a new or a secondhand box. A new box was found to cost from 30 to 35 cents.

Summary of Findings.--The most important findings in this preliminary study are the following:

1. A wide variety of marketing channels are used for California summer and fall tomatoes sold within the state. Approximately 32 per cent of these tomatoes move directly from grower to retail store, the remaining 68 per cent going through some city wholesale market. Approximately 13 per cent are handled by truck-jobbers en route to the retailer.

2. Grower-shippers, who are large producers operating permanent packing sheds and who grow more than 50 per cent of the produce packed in their own shed, are more important in southern California than in northern and central California.

3. Summer and fall tomatoes are grown in almost every agricultural area of the state, the most important source of supply for northern and central California being the San Joaquin Valley, and southern California being supplied almost entirely from its own coastal area.

4. The retail margin is an important element in the total spread from producer to consumer. Even if physical losses due to waste and spoilage are not included, the retail margin is more than 42 per cent of the total marketing margin.

5. Losses due to waste and spoilage are appreciable--comprising about 12 per cent of the physical quantities handled. Some of these losses are probably necessary, considering the nature of consumer demand; some may be avoidable.

6. Retail margins during the period were higher in the large metropolitan areas of Los Angeles, San Francisco-Oakland, and San Diego than in other sections

TABLE 4

Assembling, Packing, and Container Charges[a] on California Fresh Tomatoes--Summer and Fall, 1948

Producing area[b]	Packers[b]	Grower-shippers[b]	Growers[b]
	cents per lug[c]		
North Coast	--	--	61.0
San Francisco Bay	53.9	29.0	36.4
Santa Cruz--Monterey	--	54.2	50.3
San Luis Obispo--Santa Barbara	--	--	49.7
Sacramento Valley	87.0	45.0	32.0
North San Joaquin Valley	69.3	48.6	38.6
South San Joaquin Valley	121.7	56.2	43.4
Southern California	55.0	42.8	45.9
California average	70.9	43.6	45.9

a/ Does not include harvesting costs nor any packing done in the field. Where such operations are in fact performed, estimated cost is deducted. Figures for Packers include net profit or management income; figures for Grower and Grower-Shippers do not.

b/ See page 40 for definitions.

c/ 32-pound lugs.

of the state; within these metropolitan areas stores giving credit or delivery showed significantly higher margins.

7. Transportation costs are such a small proportion of the total marketing cost that it does not appear that reduction in crosshauling would greatly reduce the total cost of marketing.

8. There are large and as yet unexplained variations in marketing margins as between different establishments which warrant further study.

Appendix A: Supplementary Tables on Retail Margins

TABLE 5

Retail Gross Margin, Selling Price, and Spoilage Loss on California Fresh Tomatoes[a] Sold in Cities of Population Over 50,000--Summer and Fall, 1948

Type of retail store	Number of store visits	Average gross margin	Average deviation in margin	Average selling price	Average spoilage loss
		cents per pound			per cent
	Metropolitan Los Angeles, San Bernardino, and San Diego				
Type of service					
Credit or delivery	17	10.5	±3.2	17.4	19.5
Cash-carry	56	6.6	±2.4	12.5	12.8
Size[b] and type of business					
Large--grocery or combination	40	7.2	±2.7	13.5	14.1
Large--fruit and vegetable	8	5.4	±0.9	10.0	13.0
Small	25	7.7	±3.0	13.9	12.2
	Metropolitan San Francisco and San Jose				
Type of service					
Credit or delivery	31	8.6	±1.7	15.2	9.2
Cash-carry	87	6.1	±2.7	11.9	10.9
Size[b] and type of business					
Large--grocery or combination	30	6.5	±2.7	12.4	8.9
Large--fruit and vegetable	64	6.6	±3.0	12.7	11.8
Small	24	5.2	±3.0	8.7	12.6
	Sacramento, Stockton, and Fresno				
Type of service					
Credit or delivery	31	4.2	±1.5	9.9	11.1
Cash-carry	56	4.3	±1.8	11.1	12.6
Size[b] and type of business					
Large--grocery or combination	31	3.3	±1.3	9.8	5.1
Large--fruit and vegetable	14	5.7	±1.0	12.9	20.2
Small	41	5.3	±1.9	11.2	17.0

a/ In 32-pound lugs.
b/ A large store is defined as one having over $25,000 sales of fresh fruits and vegetables in the year 1948. A small store is defined as one having less than this amount.

TABLE 6

Retail Gross Margin, Selling Price and Spoilage Loss on California Fresh Tomatoes[a] Sold in Small Cities and Towns--Summer and Fall, 1948

Type of retail store	Number of store visits	Average gross margin	Average deviation in margin	Average selling price	Average spoilage loss
		cents per pound			per cent
		North and Central Coast[b]			
Type of service					
Credit or delivery	60	4.4	±2.1	10.5	6.7
Cash-carry	28	5.2	±1.5	12.2	10.7
Size[c] and location					
Large--North Coast	16	5.4	±1.0	12.6	11.1
Large--Central Coast	32	4.5	±2.1	10.9	8.3
Small--North Coast	8	5.0	±1.8	11.7	8.5
Small--Central Coast	32	4.4	±2.1	10.4	5.8
		Sacramento and San Joaquin valleys[b]			
Type of service					
Credit or delivery	112	5.0	±1.9	11.6	10.3
Cash-carry	49	4.3	±1.7	10.1	10.9
Size[c] and location					
Large--Sacramento Valley	36	5.0	±1.8	11.7	11.1
Large--San Joaquin Valley	55	4.3	±1.9	9.8	10.2
Small--Sacramento Valley	31	4.0	±0.8	11.2	9.8
Small--San Joaquin Valley	39	5.3	±2.0	11.8	11.0
		Southern California[b]			
Type of service					
Credit or delivery	13	4.1	±1.5	10.4	15.4
Cash-carry	36	5.2	±1.7	11.8	12.7
Size of store[c]					
Large	27	5.0	±1.8	11.7	12.0
Small	22	5.0	±1.6	11.0	16.4

(Continued on next page.)

(Table 6 continued.)

a/ In 32-pound lugs.

b/ For definition of areas, see page 40.

c/ A large store is defined as one having over $25,000 sales of fresh fruits and vegetables in the year 1948. A small store is defined as one having less than this amount.

TABLE 7

Retail Gross Margin, Selling Price, and Spoilage Loss on California Fresh Tomatoes[a] Sold in Independent and in Local Chain Stores--Summer and Fall, 1948

Store type and area[b]	Number of store visits	Average gross margin	Average deviation in margin	Average selling price	Average spoilage loss
		cents per pound			per cent
Independent stores					
North and Central Coast	194	6.2	±1.7	12.2	10.7
Sacramento and San Joaquin valleys	228	4.5	±1.8	10.8	11.1
Southern California	102	6.3	±2.3	12.4	12.9
Local chain stores[c]					
North and Central Coast	12	5.6	±1.8	11.3	9.7
Sacramento and San Joaquin valleys	19	4.8	±1.3	11.4	8.8
Southern California	20	6.9	±2.5	12.8	14.8

a/ In 32-pound lugs.

b/ For definition of areas. See page 40.

c/ Corporate chain store systems local to the area (excluding national chains).

Appendix B

METHODS OF MAKING THE ESTIMATES

Nature of the Sample of Retail Stores.--The sample of retail stores selected was limited to a large extent by two policy decisions made by the cooperating agencies early in the planning stage of the study: (1) that the entire geographic area of the state of California was to be represented (except the portion lying east of the Sierra Nevada) and (2) that collection of field schedules was to commence within one month from the date of inauguration of the study. Decision (1) meant that, in order to utilize available personnel and time most effectively, retail stores in the sample had to be selected from locations reasonably near main highways of the state. Decision (2) meant that stores had to be quickly selected whose managers would voluntarily cooperate in supplying the information requested. The resulting sample was not one from which a simple unweighted average could be computed that could reasonably give valid state-wide estimates.

Because, moreover, of the desire to study marketing channels as well as margins, certain sampling rates were deliberately introduced. For example, remote geographic areas, including mostly small stores, were included--at the cost of overrepresenting certain periods of time--but with the advantage of securing additional information on channels of distribution that are probably not functions of time.

In general, the boundaries of the strata that are defined in the following paragraphs depend largely on the availability of sample information. The strata were delineated in detail after the sample was selected--a procedure somewhat in contrast with orthodox techniques of sample design. At the time of writing this report, it has not been possible to study completely the undesired biases that are present in the sample and instances and effects of nonrandom selection of stores within strata. It is recognized that such instances may affect the

conclusions and interpretations. In general, it has been assumed that lacking any definite reason to suppose otherwise, sampling within a defined stratum has been at random.1/

Channel Percentages (Figures 1 through 4).--The population of retail stores in California (excepting national chain stores and stores located in the area east of the Sierra Nevada) was divided into 25 strata based on size of city in which the store was located, the geographic area in the state where the store was located, and size of store as measured by sales of fresh fruits and vegetables in 1948. These attributes used for stratification were selected in part from *a priori* considerations as to what should be expected to affect a retailer's source of supply and in part from the availability of information on population weights (see below).

Retail strata weights were estimated on the basis of sales of fresh fruits and vegetables in 1948. The latter was obtained on the basis of the population distribution in the state of California in 1948 as estimated by the U. S. Bureau of the Census and on the distribution of sales of fresh fruits and vegetables among different types of stores and different sizes of stores as obtained from the 1939 retail census of distribution. The percentage weights obtained are presented in table 8.

Within each retail stratum defined, an estimate was made of the proportion of tomatoes coming from different types of sources. This estimate was obtained by recording the source of supply of the lot of tomatoes found in each retail store sampled in the stratum on the day of the interview and weighting this source by the amount sold by the retail store during the preceding week. If v_j is the

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1/ We may note here our contention that, while biases may later be discovered and corrected, it is in the nature of things impossible to prove that any sampling procedure actually carried out is or is not perfectly random in the sense that every element of the population has a specified probability of falling in the sample.

"amount sold last week" by retail store j, and if v_{ij} is either 0 or v_j, depending on whether the lot found came from source i or from another source, if p_i represents the estimated proportion from source i in the stratum, and if there are n stores sampled in the stratum, then $P_i = \sum_{j=1}^{n} V_{ij} \Big/ \sum_{j=1}^{n} V_j$. This procedure is based on the assumption that there was little or no variation in the sources used by a retailer over a period of one week, and this assumption seems to be correct. The chief sources of variation in channel percentages seem to be found over longer periods of time and over different types of retail stores.

Using the weights for the 25 strata listed in table 8, weighted average percentages were computed for northern and central California, for southern California, and for California. These percentages are those appearing in figures 1 through 4.

The channel percentages for earlier levels than the retail level were obtained by a similar procedure. "Dealer strata" were defined depending on the type of dealer (for example, wholesaler or truck-jobber) and the city location of the dealer. The weights for these strata were obtained by summing the channel percentages emanating from the dealer stratum in question--that is, the percentages discussed in the preceding paragraphs. These weights are, therefore, random variables. Channel percentages leading <u>to</u> each dealer stratum were estimated from the information provided by the dealers interviewed in a manner similar to that described above for the retail strata. Each dealer interviewed within a stratum is assigned a weight, which is the sum of the "amounts sold last week" by all retail stores in the sample who referred to this dealer. A weighted average ratio of dealer sources is computed for each dealer stratum, using these weights.[1/]

1/ A defect in the procedure followed is that the identity of each dealer was not coded and transferred on to the punch cards, so that it is not known how many different dealers are represented by a weighted average, using retail store visits as weights.

TABLE 8

Retail Strata Used for Channel Percentages and Estimated Weights Based on 1948 Sales of Fresh Fruits and Vegetables

City size and region a/	Large stores b/	Small stores b/	All stores
per cent of northern and central California sales c/			
Cities 50,000 and over			
Metropolitan San Francisco and San Jose	22.2	17.1	39.3
Sacramento	--	--	2.8
Stockton and Fresno	--	--	3.7
Cities and places less than 50,000			
North Coast	3.1	3.6	6.7
San Francisco Bay area d/	--	--	8.8
Santa Clara, San Benito, Santa Cruz, Monterey	3.3	3.8	7.1
San Luis Obispo--Santa Barbara	0.9	1.0	1.9
North Sacramento Valley	2.8	3.2	6.0
South Sacramento Valley	2.7	3.1	5.8
North San Joaquin Valley	3.1	3.5	6.6
South San Joaquin Valley	5.3	6.0	11.3
per cent of southern California sales c/			
Cities 50,000 and over			
Metropolitan Los Angeles	34.1	21.7	55.8
San Diego and San Bernardino	--	--	9.5
Cities and places less than 50,000			
Imperial and Coachella valleys	--	--	1.0
All other southern California	15.8	17.9	33.7

a/ See page 40 for definitions of regions.

b/ A large store is defined as one having over $25,000 sales of fresh fruits and vegetables in the year 1948. A small store is defined as one having less than this amount.

c/ Northern and central California sales estimated as 48.7 per cent of total California sales; southern California sales estimated as 51.3 per cent of total California sales.

d/ Not including Santa Clara and San Benito counties.

This procedure was followed backwards in the marketing process until the original grower sources are encountered.

An approximation to the magnitude of the sampling error present in the channel percentages can be obtained from the following considerations. The percentage closest to the retail level (for example, the 10 per cent from truck-jobbers to retailers in figure 3) is a weighted average based on a stratified sample of retail store visits. If the sampling numbers had happened to be proportional to the weights of the strata (proportional sampling), then this weighted average percentage would have a standard error which can be shown to be smaller than that of a percentage obtained from a random unrestricted sample of the same size. The latter standard error is given approximately by the formula $\sigma_{\bar{p}} = \sqrt{\frac{\bar{p}(1-\bar{p})}{n}}$, where $\bar{p}$ is the proportion in the sample and n is the number of store visits. Confidence intervals at the 95 per cent level, based on this formula, were computed and appear in table 9.

TABLE 9

Confidence Intervals[a] for Channel Percentages Nearest Retail Level[a]
(Figures 1 through 4)

Width of confidence interval or error	Range of percentage figures having stated error	
	Northern California percentages	Southern California percentages
±1	0 - 2 98 - 100	0 - 1 99 - 100
±2	3 - 8 92 - 97	2 - 3 97 - 98
±3	9 - 18 82 - 91	4 - 7 93 - 96
±4	19 - 46 54 - 81	8 - 12 88 - 92
±5	47 - 53	13 - 20 80 - 87
±6		21 - 79

a/ At 95 per cent level.

They are intended to give a rough idea of the reliability of the channel percentages closest to the retail level.

These confidence limits overstate the error in our percentages insofar as there is variation between strata, which is known to be large. An offsetting factor in the direction of understatement is possible bias in our weights. Departures from proportional sampling may either understate the error or exaggerate its overstatement.

Similar confidence limits could be obtained for the all-California percentages by combining the two standard errors for northern and for southern California, using the weights .487 and .513, respectively.

Channel percentages further removed from the retail level are, of course, also subject to errors, but it is more difficult even to give an approximate figure for the magnitude of the error. The sample of dealer visits is smaller than of retail visits, but the relative coverage of the population of tomatoes marketed is probably rather complete. However, the weighting of the information is based on the retail weighting, and, therefore, the errors in these earlier channel percentages are based in part on the errors in the retail percentages.

Components of Cost (Table 1, Figure 5).--The components of cost appearing in table 1 and the derived percentages of figure 5 are averages of the various cost items appearing in greater detail in subsequent tables.

"Retail margin" in table 1 has been explained in the text. The strata weights described in the next subsection are used to obtain the California averages.

The percentages appearing in figure 5b are based on the "cost to consumer" figure of $3.14 in table 1. These percentages can be interpreted as "per cent of consumer's dollar" (see text, page 13). Another way of considering the matter is to ask the question: "What are the costs of marketing and delivering

32 pounds (or 1 pound) into the hands of the consumer?" The factor of spoilage means that in order to move 32 pounds out of his store, a "typical" retailer must buy approximately 36 pounds, or 4 additional pounds. (To move 1 pound out of his store, he must buy approximately .14 additional pounds.) In a sense, the value of this additional quantity is an operating cost of selling the unspoiled quantity. Because of the existence of this amount of spoilage, consumers are charged more than they otherwise would be. If the amount spoiled is valued at the retail price and considered as a marketing cost, then the various components of marketing cost could be expressed as percentages of the retail price, $3.57.[1] These percentages, so computed, would be: spoilage, 12; retail margin, 37; wholesaling, 6; transportation, 4; packing and container, 13; and farm production, 28.

"Wholesale margin" and "packing" in table 1 include the wholesaler and truck-jobber margins of table 3 and the packing costs of table 4, respectively. The unit costs which are applicable are combined together in a weighted sum using the dealer weights obtained from the channel percentages (see above).

"Transportation" is the weighted sum of unit transportation costs over all geographic paths found, the weights being the estimated channel percentages for the respective paths.

"Farm production" is the residual obtained by substracting the items enumerated above from the retail price. In some cases the farm price was a given datum on the field schedules and the packing cost, the residual.

Retail Margins and Spoilage Losses (Tables 2, 5, 6 and 7).--Retail strata were set up using the same criteria of classification described above under

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1/ But there are also other and probably better methods of valuation of spoilage. For a brief discussion of this matter, see a note by the writer, "Spoilage as a Marketing Cost in Perishables," Agricultural Economics Research, vol. 1, no. 4, p. 129, October, 1949.

"Channel Percentages." However, a further breakdown of large retail stores into grocery stores (including stores selling meat) and fruit and vegetable stores was made and larger geographic areas were used than those listed previously; the resulting 19 strata and weights (shown in table 10) were used in combining retail margins and spoilage losses into California averages.

Each retail store in the sample was also classified as chain or independent and according to whether or not the store offered some credit or delivery service. No information was available whereby strata weights for these classifications could be estimated; however, groups were defined and sample means were computed in order to make statistical tests of significant differences. All of these sample groupings of stores are listed in tables 5, 6, and 7. They include the 19 strata mentioned above, 6 "chain-independent" groups, and 12 "type-of-service" groups.

In table 2 are listed six larger groups formed by certain mergers of the original groups. The population was partitioned into these six groups according to the following procedure. The 19 strata defined by table 10 were first considered; a weight, h, was defined for each stratum as the reciprocal of the estimated variance of the sample mean margin and was computed from the formula: $h = .64\, n/d^2$, where n is the number of store visits in the stratum and d the weighted mean absolute deviation from the median.[1/] Then, if any k strata are combined and a pooled mean $\bar{x}$ computed, where $\bar{x} = \sum_{j=1}^{k} h_j x_j \Big/ \sum_{j=1}^{k} h_j$ and where x_j is the sample mean for stratum j, the quantity $S^2 = \sum_{j=1}^{k} h_j (x_j - \bar{x})^2$

1/ This formula uses the rule-of-thumb relationship $d = 1.25\sigma$, where d and σ are unweighted mean deviation and standard deviation, respectively. The relationship was tested for a number of groups and found to hold reasonably closely for weighted mean deviation and standard deviation also. This relationship was employed in order to avoid squaring (as well as weighting) large numbers of figures.

[illegible]

[illegible]

[illegible]

TABLE 10

Retail Strata Used for Retail Margins and Estimated Weights Based on 1948 Sales of Fresh Fruits and Vegetables

City size and region[a]	Large[b] grocery stores	Large[b] fruit and vegetable stores	All large[b] stores	Small[b] stores
per cent of northern and central California sales[c]				
Cities 50,000 and over				
Metropolitan San Francisco and San Jose	8.6	13.6	22.2	17.1
Sacramento, Stockton and Fresno	2.3	0.6	2.9	3.6
Cities and places less than 50,000				
North Coast and San Francisco Bay area[d]	--	--	7.3	8.2
Central Coast[e]	--	--	4.2	4.8
Sacramento Valley	--	--	5.5	6.3
San Joaquin Valley	--	--	8.4	9.5
per cent of southern California sales[c]				
Cities 50,000 and over				
Metropolitan Los Angeles, San Bernardino and San Diego	17.2	22.7	39.9	25.4
Cities and places less than 50,000	--	--	16.3	18.4

a/ See page 40 for definitions of regions.

b/ A large store is defined as one having over $25,000 sales of fresh fruits and vegetables in the year 1948. A small store is defined as one having less than this amount.

c/ Northern and central California sales estimated as 48.7 per cent of total California sales; southern California sales estimated as 51.3 per cent of total California sales.

d/ Not including Santa Clara and San Benito counties.

e/ Including Santa Clara and San Benito counties.

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]				
[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]				
[illegible]	—	—	[illegible]	[illegible]
[illegible]	—	—	[illegible]	[illegible]
[illegible]	—	—	[illegible]	[illegible]
[illegible]	—	—	[illegible]	[illegible]
[illegible]				
[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	—	—	[illegible]	[illegible]

[illegible]

[illegible]

has the chi-square distribution with k - 1 degrees of freedom.[1/] Furthermore, if the total number of 19 strata is partitioned into G subgroups, consisting of $k_1, k_2, \ldots k_G$ strata (where $\sum_{i=1}^{G} k_i = 19$), having means $\bar{x}_1, \bar{x}_2, \ldots \bar{x}_G$, respectively; then, from the additive property of chi-square, the total sum of squares within groups S_w^2 (where $S_w^2 = \sum_{i=1}^{G} S_i$ and where each S_i^2 is defined as above) also has the chi-square distribution, but with 19 - G degrees of freedom.

Consider the comolete set of possible partitions of the 19 strata into G subgroups, where G can be any number from 1 to 19, inclusive. The following properties are defined:

(1) A partition is termed "admissible" if, within every subgroup, each element (stratum) has at least two common attributes (for example, geographic location, city size, store size) with at least one other element within the same subgroup. For example, a subgroup containing the two strata, "small stores in small cities in the Sacramento Valley" and "large stores in small cities in the San Joaquin Valley," would not be admissible, but a subgroup containing "small stores in small cities in the Sacramento Valley" and "small stores in small cities in the San Joaquin Valley" would be admissible.

(2) A partition is termed "adequate" if the value of S_W^2, the sum of squares within groups of the partition, is smaller than chi-square at the 5 per cent level of significance. Roughly speaking, an "adequate" partition means that the "unexplained" or residual variation about the subgroup means is sufficiently small. (For if it were significantly large, that would indicate that at least some groups were not sufficiently homogeneous and we should want to break down the groups further.)

1/ This statement is not strictly true because of the manner of estimating the sampling variance of x_j and because of possible nonnormality of x_j in small samples.

The "most significant" partition is defined as a partition which is both "admissible" and "adequate" as defined above and which also satisfies the following optimum properties:

(3) The number of subgroups employed, G, is a minimum.

(4) The value of S_W^2 is a minimum for those partitions employing the minimum number of subgroups.

These criteria were applied to the 19 strata by a method of trial and error. The most significant partition was found to divide the strata into five subgroups, namely, the first four groups listed in table 2 and a group consisting of all stores in the metropolitan areas of Los Angeles and San Francisco--that is, the last two groups listed in table 2 combined into one. The criteria were then applied de novo to the twelve "type-of-service" groups; the most significant partition was found to consist of the following three groups in order of decreasing margin: (a) credit and delivery stores in San Francisco and Los Angeles; (b) cash-carry stores in San Francisco and Los Angeles; and (c) all other stores in California. The criteria were then applied to the six "chain-independent" groups; the most significant partition was found to consist of only two groups based on geography: (a) central valley stores and (b) all other stores; chain and independent stores were found merged within each group.

Accepting the subgroups defined by the first two partitions, we arrive at the six groups presented in table 2. The chain-independent partition adds nothing new.[1/]

1/ It would, of course, be more logical to have had all of the original sample groups defined so as to be mutually exclusive and to perform just one "significant partition" instead of three. But the trial-and-error method becomes laborious when dealing with a large number of groups, and no more satisfactory method was discovered. It so happened that the procedure followed above yielded three partitions with no overlapping boundaries so that it was easy to combine the results into a consistent pattern. This might not always occur.

Wholesaler and Truck-Jobber Margins (Table 3).—The gross margin of a wholesaler or of a truck-jobber is taken to be the difference between the selling price f.o.b. his premises and the purchase price delivered to his premises. In the case that transportation is performed by the dealer himself, an estimate of the cost of such transportation is made and the amount deducted. In the case that an independent broker was used in a transaction, the brokerage fee paid is considered to be a part of the wholesaler's margin. This procedure was used in order to obtain wholesale margins that were comparable as between wholesalers who employed independent brokers and those who employed their own salesmen.

In the case of truck-jobber margins, the deduction for transportation functions was, of course, a considerable proportion of the total margin.

Individual respondents were classified into "dealer strata" according to the dealer type and city location (cf., "Channel Percentages" above). For each stratum a weighted average margin was computed from the available sample information, using as weight for each respondent the sum of "amounts sold last week" of all retail stores using the respondent as source of supply. The weights were obtained by a sorting of sample retail stores on their dealer sources. These weighted averages are those appearing in table 3.

Assembling, Packing, and Container Charges (Table 4).—Estimates of packing and container charges were obtained through personal interview by Mr. Willard Williams from those growers, grower-shippers, and packers whose names were given in the tracing-back process previously described. In this report "farm production" is considered to include all costs up to the point where the tomatoes are brought to the farm gate or packing house door in a prepacked condition; marketing costs are considered to be those costs incurred after this point. Harvesting costs are, therefore, in this report considered to be one item of production costs, although in many cases picking was performed by the party performing the packing. In these cases an estimate of the picking costs was made and the amount separated.

Strata for these dealer types were defined according to dealer type and producing region. Averages within each stratum were computed in the manner described in the previous section for wholesalers and truck-jobbers. These averages are those appearing in table 4.

Appendix C

DEFINITIONS OF TERMS

Geographic Areas

Central Coast--Counties of Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara, excluding the city of Santa Barbara and immediate environments.

Metropolitan Los Angeles--The cities of Los Angeles, Long Beach, Pasadena, Glendale, Burbank, and Santa Monica.

Metropolitan San Francisco--The cities of San Francisco, Oakland, Berkeley, Richmond, and Alameda.

North Coast--The counties north of San Francisco Bay.

Northern and Central California--The portion of California lying north of the Tehachapi Mountains or west of Ventura County, but excluding the city of Santa Barbara and immediate environments.

North Sacramento Valley--The counties, Colusa, Sutter, Yuba, Nevada, and other counties lying to the north of these counties.

North San Joaquin Valley--The counties, San Joaquin, Stanislaus, Merced, Mariposa, Tuolumne, Calaveras, and Amador.

San Francisco Bay Area--The counties, San Francisco, San Mateo, Contra Costa, Alameda, Santa Clara, San Benito, and the city of Vallejo.

Southern California--The portion of California lying south of the Tehachapi Mountains and east of Santa Barbara County, but including the city of Santa Barbara and immediate environments.

South Sacramento Valley--The counties, Solano, Yolo, Sacramento, El Dorado, and Placer, excluding the city of Vallejo.

South San Joaquin Valley--The counties, Madera, Fresno, Tulare, Kings, and Kern.

APPENDIX A

DEFINITIONS OF TERMS

Geographic Areas

Central Coast--Counties of Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara, excluding the city of Santa Barbara and immediate environments.

Metropolitan Los Angeles--The cities of Los Angeles, Long Beach, Pasadena, Glendale, Burbank, and Santa Monica.

Metropolitan San Francisco--The cities of San Francisco, Oakland, Berkeley, Alameda, and Richmond.

North Coast--The counties north of San Francisco Bay.

Northern and Central [illegible]--The portion of California lying north of the [illegible] Mountains, [illegible] County, [illegible] Santa Barbara and immediate environments.

North Sacramento Valley--The counties, [illegible], and other counties lying to the north of [illegible].

South San Joaquin Valley--The counties, [illegible], Stanislaus, Merced, [illegible], and [illegible].

San Francisco Bay Area--The counties, San Francisco, San Mateo, [illegible], and the city of [illegible].

Southern California--The portion of California lying south of the [illegible] Mountains and east of Santa Barbara County, not including the city of Los Angeles and immediate environments.

South Sacramento Valley--The counties, Sacramento, [illegible], and [illegible], excluding the city of [illegible].

South San Joaquin Valley--The counties, Kern, Kings, Tulare, and

Fresno.

Dealer Types

Dealer--One whose principal business is to buy produce on his own account or to receive produce on consignment and sell it to others (except individual consumers). A general term intended to include wholesalers, truck-jobbers, truckers, and packers. Does not include brokers, or carriers who do not take title to produce.

Wholesaler--A dealer whose principal business is to receive produce, store it, and resell to others at an established place of business. May buy either from growers or from other dealers. May sell either to other dealers or to retailers. May perform delivery service, but must have an established place of business where customers come and buy. (If a dealer has no such facilities, he is classified as Truck-Jobber.)

Truck-Jobber--A dealer who buys primarily from wholesalers, carries a wide variety of items per truckload and sells only to retailers at their door. May have storage facilities, but does not sell on established premises. A regular truck route usually followed.

Trucker--A dealer whose principal business is to buy produce in producing areas, transport it, and resell either to other dealers or to retailers. Handles only a few items per truckload. May operate a fleet of trucks. Sales may be either to other dealers or to retailers. (If a party does not buy the produce outright or take it on a consignment basis, he is not considered a dealer but as hired to perform transportation services.)

Packer--A dealer who assembles, packs, processes, loads, or ships produce or any of these functions, the major portion of such produce being bought from growers or handled for the account of growers. Usually operates a permanent packing shed. (If a party grows more than 50 per cent of the produce packed, he is classified as Grower-Shipper or Grower.)

Grower-Shipper--A grower who also operates a permanent packing shed and who grows more than 50 per cent of the produce packed in the shed. Is usually a large producer.

Grower--One who is actually engaged in growing operations on the land where the commodity is produced and does not operate a permanent packing shed. Either packs produce by means of temporary facilities or sells to a packer. May either rent or own the land.

Retailer--One whose principal business is to sell to individual consumers. Does not include growers who sell directly to consumer, except where such grower has an established retail outlet, which is his major business.

Broker--An agent who does not have title or physical control of produce, but who negotiates sales and receives a commission or brokerage fee.

Appendix D

LOCATION OF RETAIL STORES

Stores Visited Twice a Month (Intensive Sample)

San Francisco Bay Area	Number of Stores
San Francisco	10
Oakland	5
Berkeley	5
Palo Alto	2
San Jose	2
	24

Southern California	Number of Stores
Los Angeles	7
Pasadena	2
Long Beach	2
Santa Ana	1
San Bernardino	2
Riverside	2
Escondido	1
San Diego	3
	20

Central Valley	Number of Stores
Sacramento	5
Roseville	2
Placerville	2
Stockton	3
Tracy	1
Oakdale	1
Modesto	2
Merced	2
Fresno	4
	22

Total Stores: 66

Stores Visited Once in September and Once in November (Extensive Sample)

North Coast	Number of Stores
San Rafael	2
Petaluma	1
Santa Rosa	2
Ukiah	2
Lakeport	1
Calistoga	1
Napa	2
Vallejo	2
Concord	1
Livermore	1
	15

Central Coast	Number of Stores
San Martin	1
Gilroy	1
Hollister	2
Santa Cruz	3
Watsonville	3
Salinas	2
Seaside	1
Monterey	1
Carmel	1
Gonzales	1
King City	1
Paso Robles	2
Atascadero	2
Santa Margarita	1
San Luis Obispo	2
Arroyo Grande	1
Santa Maria	2
Lompoc	2
	29

Stores Visited Once in September and Once in November (Extensive Sample)

Sacramento Valley	Number of Stores
Fairfield	1
Winters	1
Woodland	2
Auburn	1
Grass Valley	1
Marysville	2
Williams	1
Willows	1
Oroville	1
Chico	2
Orland	1
Corning	1
Red Bluff	2
Redding	2
Dunsmuir	1
	20

Southern California	Number of Stores
Ventura	2
Oxnard	1
Santa Paula	1
San Fernando	2
Burbank	2
Glendale	3
Banning	1
Corona	1
Elsinore	1
Fallbrook	1
Oceanside	1
Ramona	1
Jacumba	1
El Centro	2
Brawley	2
Indio	2
	24

San Joaquin Valley	Number of Stores
Rio Vista	1
Walnut Grove	1
Galt	1
San Andreas	1
Sonora	1
Turlock	1
Gustine	1
Los Banos	1
Madera	2
Coalinga	1
Reedley	2
Dinuba	2
Visalia	3
Exeter	1
Lindsay	1
Porterville	2
Avenal	1
Wasco	1
Taft	2
Bakersfield	3
	29

Total Stores: 117